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Proving that each yearly deficiency is increased by the chance of death during nonpayment, besides the ordinary interest.

Demonstration of the expressions $\frac{(1+i)^n - 1}{i}$ the Amount, and $\frac{1 - (1+i)^{-n}}{i}$ the Present Value, of £1 per Annum for n Years.—Since $(1+i)^n - 1$ evidently represents the amount of an annuity of i pounds in n years, the first formula above given is clearly that for the *amount* of £1 per annum for the same term. For as $i : (1+i)^n - 1 :: 1 : \frac{(1+i)^n - 1}{i}$; in like manner, $\frac{1 - (1+i)^{-n}}{i}$ is the *present value* of £1 per annum for n years. For as $(1+i)^n : 1 :: \frac{(1+i)^n - 1}{i} : \frac{1 - (1+i)^{-n}}{i \cdot (1+i)^n} = \frac{1 - (1+i)^{-n}}{i}$.—ED. A. M.

FOREIGN INTELLIGENCE.

GERMANY.—*New Insurance Companies in Germany.*—The General Railway Insurance Company in Berlin (*Allgemeine Eisenbahn Versicherungs Gesellschaft*), registered by Order of Council of His Majesty the King of Prussia, of the 26th September, 1853, with a subscribed capital of Prussian thalers 1,000,000 (£166,000 sterling), in 1,000 shares, of which 20 per cent. is paid up, insures, according to the deed of constitution—

Class 1. To railway managers, for any loss and damage on moveable and immovable property, or on articles and goods of all kinds to be forwarded by trains or to be kept at the stations.

Class 2. To passengers and railway officers, for any personal injury or loss of life, and for loss on luggage.

The prospectus issued treats only of this second class, and I extract the following particulars.

Insurance on persons is granted to railway passengers, either for single days, for one, three, and six months, for one or five years, or for the duration of life, along all the railways of Europe; to railway officers, only for the period of one year, at the premium of 1 per cent.

The maximum to be insured by a passenger is Pr. th. 7,000 (£1,150); by an officer, Pr. th. 1,000 (£160).

Claims are settled according to the following rates—

100 per cent. in case the accident causes death immediately, or within 30 days.			
Up to $\frac{1}{3}$ "	do.	do.	incapacity to work for 8 days.
" $6\frac{2}{3}$ "	do.	do.	for a longer time.
" $33\frac{1}{3}$ "	do.	do.	loss of limb, or lasting serious damage to health.
" $66\frac{2}{3}$ "	do.	do.	total incapacity to work.

The premiums are—

Per Mille.	Sum Insured. Pr. Th. 3,000.	Sum Insured. Pr. Th. 7,000.
For one day	14/630	12/630
" month	140/630	120/630
" three months	315/630	225/630
" six "	420/630	360/630
" one year	630/630	570/630
" five years	2,100/630	1,980/630

For the duration of life, according to the age—Age 20 years, 10 per mille; 45 years, 6 $\frac{2}{3}$; 55 years, 5; 60 years, 4.

Insurance on luggage is only granted for the period of one year, and includes all luggage of the passengers insured, which is delivered to the administration of the railway, and for which a receipt is given. The sum assured and the claims are fixed according to the weight of the luggage, each pound either at three thalers or at five thalers, according to the will of the passenger.

The premiums are—

	At Three Thalers each Pound.	At Five Thalers each Pound.
100 lbs. . . Th. 300 . . 2 $\frac{2}{3}$ per mille . . Th. 500 . . 2 per mille.		
300 lbs. . . " 900 . . 1 $\frac{1}{2}$ " . . " 1,500 . . 1 $\frac{1}{3}$ "		
500 lbs. . . " 1,500 . . 1 $\frac{1}{3}$ " . . " 2,500 . . 1 $\frac{1}{3}$ "		

The Thuringia Railway and General Reassurance Society, in Erfurt (Eisenbahn und Allgemeine Rückversicherungs Gesellschaft), registered by Order of Council of His Majesty the King of Prussia, of 26th September, 1853, with a subscribed capital of Prussian thalers 2,000,000 (£332,000 sterling), in 1,000 shares, of which 20 per cent. are paid up, insures, according to the deed of constitution—

- a. To railway managers, for any loss and damage on moveable and immoveable property, or on articles and goods of all kinds to be forwarded by the train or to be kept at the stations.
- b. To railway officers and workmen, their wives and children, and likewise to railway passengers, for any personal injury or for loss of life.
- c. To Insurance Associations of all branches the Society will grant reassurance.

The prospectus treats only of class *b*, and resembles in some points the before-mentioned Company in Berlin. Passengers may insure for one or two days, for one, three, or twelve months; the maximum sum is 6,000 th. (£1,000). Officers are divided in four classes, and may insure only for one year.

	Maximum Sum.
Locomotive conductors, firemen, &c.	Th. 1500 (£240).
Train conductors, &c.	
Directors, engineers, railway post officers, &c.	Th. 6,000 (£1,000).
Station officers, booking officers, telegraphists, &c.	

The indemnifications given are specified as follows:—

In case of injury, the expenses of medical attendance and nursing, and 50 per cent. of the lost earnings, are given, up to 10 per cent. in case of exterior or interior injury; and up to 15 per cent. in cases of exterior and interior injury.

In case of mutilation—

75 per cent. for loss of both arms or hands, or both feet, or total loss of eyesight.

60 " " of the right arm or hand, or the right eye.

50 " " of the left arm or hand, or one foot.

30 " " of the left eye.

100 " in case the accident causes death immediately, or within two months.

Even the particular indemnification for different combinations of the enumerated losses is fixed in the prospectus.

The premiums are, for passengers—

	Sum Insured, 1,000 Thalers.	Sum Insured, 3,000 Thalers.	Sum Insured, 6,000 Thalers.
For one day .	3/180	3/180	3/180 per mille.
,, two days .	6/180	6/180	6/180 "
,, one month .	50/180	50/180	45/180 "
,, three months .	150/180	100/180	90/180 "
,, one year .	240/180	200/180	180/180 "

The Concordia Life Assurance Society in Cöln, registered by Act of Council of His Majesty the King of Prussia, of 26th September, 1853, with a subscribed capital of Pr. th. 10,000,000 (£1,600,000), in 10,000 shares, of which 20 per cent. is paid up, will effect all kinds of life assurance—annuities, Tontine Associations, and assurances against loss of life and personal injury of travellers, caused by the accidents of travelling.

The prospectus is divided into four parts, and the travellers' insurance has a separate prospectus besides these four. The insurance is granted for all journeys of the insured during a certain period, within the bounds of Europe, at sea and on land, by steam navigation, by railway, or any other conveyance.

100 per cent. of the sum insured is paid in case the accident causes death or total incapacity to work; up to 50 per cent. in case the injured is obliged to choose another profession, or in case of lasting consequences; and up to 25 per cent. in cases of less importance.

The premiums are—For one month, $\frac{1}{4}$ per mille; three months, $\frac{1}{2}$ per mille; one year, 1 per mille.

The prospectus No. 1 treats of life assurance payable at death; in case of suicide, the value of the policy is paid to the survivor. The payment of premiums ceases at the age of 85 years; and policies in force longer than five years are bought by the Company at three quarters of their value.

No charges for stamp, postage, &c., except one thaler for each policy. The prospectus contains four tables—

1. Premiums for common life assurance for 100 thalers:—

Age	Single Premiums.		Annually.		Age	Single Premiums.		Annually.	
	10 years	20 years	20 years	20 years		40 years	50 years	50 years	50 years
10	26.62	1.27	1.27	1.27	40	45.52	2.83	2.83	2.83
20	31.14	1.40	1.40	1.40	50	56.20	4.21	4.21	4.21
30	37.30	2.04	2.04	2.04	60	68.30	6.70	6.70	6.70

2. Premiums for life insurance if death happens within one, three, five, seven, and ten years.

3. Single and annual premiums to insure a capital of 100 thalers, payable at death, or if the person insured reaches the age of

Age of the Insured.	55 Years.	60 Years.	65 Years.	70 Years.
10	1.68	1.53	1.42	1.35
20	2.32	2.03	1.83	1.71
30	3.53	2.92	2.53	2.29
40	6.45	4.78	3.86	3.33
50 . . . .	..	..	7.03	5.49
55 . . . .	..	..	..	7.58

4. Premiums for survivorship assurance.

The prospectus No. 2 treats of annuities: no expenses are charged, only the stamps. It contains also four tables:—

1. Ordinary annuities. The price for an annuity of 10 thalers yearly is fixed—

Age 5 years	Th. 216·	Age 50 years	Th. 138·80
" 10 "	" 218·37	" 60 "	" 106·37
" 20 "	" 204·67	" 70 "	" 76·47
" 30 "	" 190·20	" 75 "	" 66·60
" 40 "	" 169·53		

2. Deferred annuities.

3. Annuities for two lives, payable till the death of the last.

4. Annuities for two lives, one half only payable after the death of the first.

The prospectus No. 3 treats of savings'-bank assurance, for deposits. With one year's notice, the Company grants $3\frac{1}{2}$ per cent. compound interest; with six months' notice, 3 per cent.; with three months' notice, 2 per cent.

The four tables are—1. The amount of capital, with $3\frac{1}{2}$ per cent. compound interest from 5 to 50 years, for single payment; 2. Ditto ditto, for an annual payment; 3. The premiums for assurance of 100 thalers, payable if the insured reaches a certain age; 4. Ditto ditto at a certain time at all events; the payment of premiums ceasing with the death of the assured.

The prospectus No. 4 treats of Tontine assurance. Children born in the same year are united in one class of Tontine, and the accumulated capital is divided when the children have passed the age of 21 years. The first division will take place in 1867, among persons born in 1845. The Company charges 5 per cent. for expenses of management, deducting it from the payments, and grants compound interest at $3\frac{1}{2}$ per cent. The other arrangements are made according to the plan of the French Tontines, which is generally known.

I am an advocate of Tontine Institutions; but I cannot suppress the remark, that I think it very unfair to promote the business by saying in the prospectus, "One of the eldest Societies of this kind, which cannot be without experience, assures that a child entering the Tontine in the first year of life, may expect at the age of 21 years, for an annual contribution of 10 thalers, the amount of at least 1,250 thalers; but considerably more if the circumstances are favourable."

I know that this assertion is made in the prospectus of *La Caisse Paternelle* and other French Societies, but I do not consider this an excuse for the directors of the *Concordia*. I consider them to blame either for copying such assertions without a close examination, or for repeating it after knowing that they are untenable. A very simple calculation will show that an expectation of 600 instead of 1,250 thalers might be deemed rather high.

The tables annexed to this prospectus give the single or annual payments for children born from 1845 to 1854.

We have been favoured with the following summary by Herr Rath G. Hopf, the able Manager of the Gotha Life Assurance Bank, and Foreign Correspondent of the Institute of Actuaries.

New Business and Position of the Life Assurance Companies of Germany in the Year 1853.

Established.	Name of Company.	Year.	Assurances existing at the beginning of the year.			Assurances existing at the end of the year.			Claims paid.			Expenses of Management.			Assurance Fund.			Share Capital.							
			New Assurances during the year.			Income (Profits and Interest).			Persons.			Persons.			Sums.			In General.							
			Persons.	Sums.	£.	Persons.	Sums.	£.	Persons.	Sums.	£.	Persons.	Sums.	£.	Persons.	Sums.	£.	Per Cent. of Income.	Per Cent. of Income.	Per Cent. of Income.	£.	£.	£.		
1829	Gotha	1853	17,715	4,004,057	1,324	307,700	18,427	4,159,314	187,911	390	90,514	7,397	3,94	1,78	1,043,778	25,09	846,708	175,895	Mutual	Mutual	Mutual				
1829	Lubeck	1853	2,170	498,977	713	168,632	2,714	609,094	27,909	63	12,874	3,646	13,06	5,98	70,498	11,58	..	..	72,857	7,286				
1831	Leipzig	1853	4,552	747,457	256	41,200	4,645	761,443	34,332	97	16,200	1,968	5,73	2,58	194,424	25,53	167,613	22,011	Mutual	Mutual	Mutual				
1831	Hanover	1853-4	2,913	241,400	{ 97	8,543	{ 2,920	243,428	6,763	60	4,786	452	6,68	1,85	38,370	15,11			
1834	Trieste { Generali }	1853	2,520	541,000	350	77,143	2,700	585,714	37,854	..	..	..	..	..	97,492	..	84,236	13,257	200,000	20,000				
1836	Berlin	1853	7,225	1,198,600	600	91,443	7,470	1,244,014	61,573	186	29,178	3,670	5,96	2,95	251,092	20,18	199,035	52,056	142,857	28,571					
1836	Munich	1853	1,644	172,824	283	29,224	1,806	189,609	7,143	24	3,200	..	..	..	31,086	16,39	..	..	..	..	..	..
1840	Vienna	1853	2,388	167,771	571	23,439	2,872	181,833	8,109	35	3,778	1,143	14,99	6,99	22,506	12,38	..	..	..	..	..	..
1842	Brunswick	1853	715	54,743	74	5,538	766	58,314	1,914	11	1,200	..	..	..	6,395	10,97	..	..	..	..	..	..
1845	Frankfort	1853	803	154,873	183	38,794	908	176,063	7,887	10	2,774	792	10,00	4,49	36,016	..	..	..	None	244,898	24,490			
1846	Hammonia { At Hamburg	1853	1,280	84,724	293	43,314	1,268	108,900	3,778	42	3,643	1,333	33,28	12,24	None	None	None	..	3,605	3,605					
1847	Janus { At Hamburg	1853	2,945	357,704	{ 661	83,649	{ 3,370	411,267	15,011	39	5,380	2,375	16,77	6,12	29,469	7,17	71,429	7,143	
1852	Teutonia { At Leipzig	1853	..	..	{ 153	21,244	{ 153	21,244	..	..	..	..	..	..	..	..	..	..	..	85,714	..			
	Total . . .	..	46,820	3,224,130	5,558	939,853	50,019	8,750,237	400,184	957	173,527	..	..	..	..	1,821,126	..	..	..	821,360	91,095			

A corresponding statement for the year 1852 will be found in the *Assurance Magazine*, Vol. IV., p. 136. The only addition to the previous list is the Teutonia, established at Leipzig in 1852. The number of policies or lives assured in 12 Companies existing at the end of the year 1852 is there stated as 46,980; in the present account, 46,820. The difference arises in the Lubeck Company, which in the former report was only given by conjecture. The new assurances in the year 1853, including the new Company, show an increase of 322 policies or lives, and £98,011 sums assured, over the new business of 1852; whilst the total assurances existing at the end of the year are in excess of those at the end of the year 1852 by 4,039 lives or policies and £526,108 sums assured, and amount to £8,750,237, assured on 50,019 lives or policies. The income from premiums and interest has increased £22,556 per annum in the course of the year, and the total assurance fund has increased from £1,680,314 to £1,821,126, notwithstanding that the claims paid in the latter year (£173,527) have exceeded those of the former by £11,554. To those who look upon Life Assurance Institutions as evidences of prosperity, as well as the growth of an unselfish and yet prudent spirit in the mass of the population, these results cannot but be highly satisfactory. We rejoice to perceive that a system which has in the course of a century been the means of such blessing to this kingdom, should begin to be appreciated as it deserves in other countries.

(S. B.)

Frauds in Life Assurance.—Extract of a Letter from Herr Rath G. Hopf, 3rd October, 1854.—In respect to the frauds committed at Hildesheim, heavy punishments have been inflicted on the impostors; and two agents and a medical reporter, who deceived their Societies, have likewise been severely punished. May their example be of a deterring effect. The more the benefits of life assurance are acknowledged on one side, and the further they extend, the more impostors speculate to abuse them to the purpose of blameable speculations, and the Offices must employ every precaution to guard themselves against such abuse. At present a lawsuit is going on at Berlin on account of deceits practised upon several German and English Companies by Jews, who, though much advanced in age, were assured as much younger than they were by means of false certificates of birth. The registers of the births of the Jews were formerly kept, in most German countries, not by the officers of the State, but by the rabbins. This is still the case in some countries. In others, as in Prussia, the registers are kept by the magistrates; but neither by them nor by the rabbins with that accuracy and sureness which are shown relative to the Christian population, by the clergy. Thus it has been possible to obtain false certificates of birth by bribery. In some cases the magistrate himself was agent of the cheated Company. No doubt these frauds will be visited with heavy punishments, as well at Berlin as at Hildesheim.

(S. B.)

Fire Insurance in Hamburg.—Nearly all German Fire Insurance Companies, and a great part of the English ones, have agencies in Hamburg, and the greatest part of Hamburg property is insured with them. All Hamburg buildings must be insured with a mutual Institution called the “General Feuer Casse.” But Hamburg has also an Insurance Company exclusively for fire insurance, “The Feuer Assecuranz Compagnie von 1843,” the balance-sheet of which for 1853 I annex; and three of the Marine Insurance Companies have also extended their operations to fire

insurance. These are—the Patriotische Feuer Assecuranz Compagnie; Neue Fünfte Assecuranz Compagnie; See und Feuer Assecuranz Compagnie. The latter discontinued the business of fire insurance since 1852, and now acts only for marine insurance, under the name of “Neptunus Assecuranz Compagnie.”

A summary of the fire insurance business of these three Companies, extracted from the balance-sheets, will be, I hope, not without interest.

The sums insured diminish from year to year, and the average premium also becomes less. Both facts may be considered as a consequence of the increasing number of agencies of foreign Societies. The results of the operations of these Companies are very satisfactory, considering the small extent of their business.

*Summary of the business of Fire Assurance Companies in Hamburg,
1843 to 1852 inclusive.**

Name of Company.	Year.	Sum Insured.	Premium.	Claims Paid.	Average Premium perCent.	Claims per Cent. on Sums Insured.
PATRIOTISCHE ASSE- CURANZ COMPAGNIE IN HAMBURG (Patriotic In- surance Company in Ham- burg).	1843	2,314,737	8,796	976	0·38	0·042
	1844	2,125,575	7,818	306	0·36	0·014
	1845	2,065,641	6,603	4,536	0·32	0·220
	1846	1,695,792	5,292	1,071	0·31	0·063
	1847	1,788,360	5,526	..	0·31	0·000
	1848	1,602,042	5,556	2,469	0·35	0·154
	1849	1,953,234	5,367	..	0·27	0·000
	1850	1,980,372	5,742	3,291	0·29	0·166
	1851	1,651,206	5,050	622	0·31	0·038
	1852	1,630,008	5,775	635	0·35	0·039
	1853	1,614,057	4,725	512	0·29	0·032
NEUE FUNFTE ASSE- CURANZ COMPAGNIE IN HAMBURG (New Fifth In- surance Company in Ham- burg).	1843	2,558,838	13,344	4,050	0·52	0·159
	1844	2,140,637	9,940	1,152	0·46	0·054
	1845	2,069,925	9,266	6,570	0·45	0·317
	1846	1,632,700	8,277	2,580	0·51	0·158
	1847	1,548,330	6,927	885	0·45	0·057
	1858	1,445,000	6,061	3,396	0·42	0·235
	1849	1,330,425	5,751	2,328	0·43	0·175
	1850	1,449,054	5,900	1,440	0·41	0·098
	1851	1,217,988	5,310	390	0·44	0·032
	1852	1,072,566	4,740	1,363	0·44	0·127
	1853	1,020,159	4,854	1,008	0·48	0·099
SEE UND FEUER AS- SECURANZ COMPAGNIE IN HAMBURG (Marine and Fire Insurance Company in Hamburg).	1843	946,780	4,023	1,404	0·42	0·148
	1844	884,450	3,807	93	0·43	0·010
	1845	812,565	2,785	2,258	0·34	0·278
	1846	497,550	1,755	156	0·35	0·032
	1847	553,030	1,725	438	0·31	0·079
	1848	455,805	1,434	501	0·31	0·110
	1849	363,910	1,275	32	0·35	0·008
	1850	403,560	1,251	603	0·31	0·150
	1851	287,835	783	343	0·27	0·120
	1852	99,300	276	150	0·28	0·152

* Banco marcs, 13½ = £1.

Hamburg, August, 1854.

WILHELM LAZARUS.